

REMARKS

Applicants respectfully request reconsideration of this application as amended. Claims 1 and 15 through 19 are cancelled without prejudice. Claims 2 through 7 and claims 20 through 23 are presently pending in the application.

OBJECTIONS TO THE DRAWINGS

Included with this Amendment are 7 sheets of new formal drawings. Applicants submit that these formal drawings overcome the Draftsperson's objections.

OBJECTIONS TO THE SPECIFICATION

In the Office Action the Abstract is objected to. Applicants have performed a word-count on the Abstract and submit that the present Abstract contains 123 words and extends 13 lines. Therefore applicants believe that the objection should be withdrawn.

Also in the Office Action it is stated that "[a]pplicants' cooperation is appreciated to correct the numerous error in specification and claims which contains grammatical and idiomatic errors." Applicants respectfully request having these errors brought to our attention so that we may correct them.

SECTION 112 ISSUES

In the Office Action, claims 1 through 7 stand rejected under 35 U.S.C. § 112, first paragraph. Additionally, claim 1 stands rejected under 35 U.S.C. § 112, second paragraph. Applicants respectfully traverse.

Applicants have cancelled claim 1. Applicants have further moved portions of the language of claim 1 into claim 2, making claim 2 the independent claim. The rejected language, "shifted during manufacture flat band magnitude" no longer appears in claim 2 or in claims 3 through 7 depending from claim 2. Applicants submit that the rejection has been overcome by the amendments.

In the Office Action, claims 20 through 23 stand rejected under 35 U.S.C. § 112. Applicants respectfully traverse.

The expressions "a metallic gate electrode to couple to a positive power supply voltage", "gate insulator area", "diffused drain area", "channel area", and "diffused source area" were rejected as not being understood. These expressions are the same as used in claims 2 through 7, and were placed into claims 2 through 7 in response to a previous Office Action's rejections under 35 U.S.C. § 112. Applicants wish to review some of the reasoning used in a prior response. The use of "metallic gate electrode" is directed to the exemplary gate electrode 112 of Figure 1 and gate electrode 522 of Figure 5. Applicants submit that the distinction between the metalization contact "metallic gate electrode" and the semi-conductor deposited or diffused "diffused gate

region" is now more clearly made. Applicants wish to draw attention to the specification page 8, lines 10 through 12, which recite "In the Figure 6 embodiment, the gate electrode 608 is connected to the positive power supply line (Vcc)." Applicants submit that this makes the recited "metallic gate electrode to couple to a positive power supply voltage" clear and understandable.

The expressions "gate insulator area", "diffused drain area", "channel area", and "diffused source area" may be understood in relation to the discussion of Figure 5 on specification page 7, lines 19 through 22, which recite "A *source area* 504 and a *drain area* 506 are fabricated by *diffusion* to form highly-doped p-type (p+) material. A *channel area* 508 retains the n-type material of the substrate 502. A *gate insulator area* 512 is formed over the *channel area* 508." (Applicants' emphasis added.) Applicants submit that this makes the recited "gate insulator area", "diffused drain area", "channel area", and "diffused source area" clear and understandable.

Applicants submit that the cited phrases are clear and understandable upon reference to the above-cited portions of the specification and drawings of the present application. Applicants respectfully request that the rejection of claims 20 through 23 under 35 U.S.C. § 112 be withdrawn.

SECTION 103 ISSUES

In the Office Action, claims 1 through 7 and claims 15 through 19 stand rejected under 35 U.S.C. § 103(a) as being anticipated by, among

other references, *Stein, et al.*, U.S. patent number 4,055,837
(Hereinafter *Stein*). Applicants respectfully traverse.

Claim 1 has been cancelled, and the rejected language "shifted during manufacture flat band magnitude" has not been re-introduced into any other claim.

Claim 2 stands rejected as being ^{obvious} anticipated by, among others, Dawson, et al. (US patent 5,851,891, hereinafter *Dawson*). In the Office Action, it is stated that "Dawson in col. 2 lines 48-50 describes the formation of IGFETs with any desired gate work function to form devices with low gate resistances." However, applicants have not found any such technical disclosure in *Dawson*. *Dawson* col. 2 lines 48-50 actually recites "Accordingly, a *need exists* for a method of fabricating an IGFET that provides a low resistivity gate with the desired work function." (Applicants' emphasis added.) Applicants submit that this statement of a *need existing* is not an enabling disclosure of forming a gate with any particular work function. The only other use of the expression "work function" in *Dawson* occurs at col. 2, lines 19-20, which recites "Polysilicon, on the other hand, has a *known work function...*" And applicants' claimed invention is a *replacement for* the prior-art polysilicon used in a gate. Therefore applicants submit that the invention claimed in claim 2 is not anticipated by *Dawson*, and therefore that claim 2 is allowable over the prior art of record.

Claim 3 stands rejected as being anticipated by, among others, Howard. (US patent 4,437,139, hereinafter *Howard*). In the Office

Action, a reference is made to *Howard* col. 3, line 31. However, applicants point out that the only place where *Howard* cites the use of platinum silicate (PtSi) is as part of *bottom electrode* 13, directly or indirectly coupled to the substrate 11. *Howard* does not show the use of platinum silicate as a "material of said diffused *gate region*" as recited in claim 3. Indeed, *Howard* only shows the use of platinum silicate in a bottom electrode 13 of a multi-layer capacitor 10 of Figure 1, not as a gate of a MOSFET. The multi-layer capacitor 10 of *Howard* requires a complicated dual-layer (or triple-layer) dielectric 14 consisting of a leakage prevention layer 18 and a high dielectric layer 17. This usage in *Howard* would if anything teach away from the use of platinum silicate in a more simple structure as disclosed in claim 3 of the present application. Because *Howard* does not teach the use of platinum silicate in a diffused gate region, and further because claim 3 depends from allowable claim 2, applicants submit that claim 3 is allowable over the prior art of record.

Claim 4 stands rejected as being anticipated by, among others, *Howard*. The Office Action states that the chemical compounds or elements tantalum nitrate (TaN), iridium (Ir), nickel (Ni), and arsenic (As) are disclosed in *Howard* at col. 3, lines 30-34. Applicants have downloaded a softcopy of *Howard* and performed word searches, but cannot find any reference to *any* of these compounds or elements in *Howard*. Therefore applicants submit that the claimed invention of claim 4 is not anticipated by *Howard*. Since claim 4 depends from allowable claim 2, and further since claim 4 is not anticipated by

Howard, applicants submit that claim 4 is allowable over the prior art of record.

Applicants point out that no separate rejections of claims 5, 6, and 7 were made in the Office Action. Applicants submit that claims 5, 6, and 7 are allowable as depending from allowable claim 2.

Claims 15 through 19 have been cancelled without prejudice.

Claim 20 stands rejected as being anticipated by, among others, Dawson, et al. (US patent 5,851,891, hereinafter *Dawson*). In the Office Action, it is stated that "Dawson in col. 2 lines 48-50 describes the formation of IGFETs with any desired gate work function to form devices with low gate resistances." As mentioned above in connection with claim 2, applicants have not found any such technical disclosure in *Dawson*. *Dawson* col. 2 lines 48-50 actually recites "Accordingly, a *need exists* for a method of fabricating an IGFET that provides a low resistivity gate with the desired work function." (Applicants' emphasis added.) Applicants submit that this statement of a *need existing* is not an enabling disclosure of forming a gate with any particular work function. The only other use of the expression "work function" in *Dawson* occurs at col. 2, lines 19-20, which recites "Polysilicon, on the other hand, has a *known work function*..." And applicants' claimed invention is a *replacement* for the prior-art polysilicon used in a gate. Therefore applicants submit that the invention claimed in claim 22 is not anticipated by *Dawson*, and therefore that claim 20 is allowable over the prior art of record.

Claim 21 stands rejected as being anticipated by, among others, Howard. (US patent 4,437,139, hereinafter *Howard*). In the Office Action, a reference is made to *Howard* col. 3, line 31. However, as mentioned above in connection with claim 3, applicants point out that the only place where *Howard* cites the use of platinum silicate (PtSi) is as part of *bottom electrode* 13, directly or indirectly coupled to the substrate 11. *Howard* does not show "said material is platinum silicate" as recited in claim 21, referring to "a diffused gate region formed from a material" as recited in independent claim 20. Indeed, *Howard* only shows the use of platinum silicate in a bottom electrode 13 of a multi-layer capacitor 10 of Figure 1, not as a gate of a MOSFET. The multi-layer capacitor 10 of *Howard* requires a complicated dual-layer (or triple-layer) dielectric 14 consisting of a leakage prevention layer 18 and a high dielectric layer 17. This usage in *Howard* would if anything teach away from the use of platinum silicate in a more simple structure as disclosed in claim 21 of the present application. Because *Howard* does not teach the use of platinum silicate in a diffused gate region, and further because claim 21 depends from allowable claim 20, applicants submit that claim 21 is allowable over the prior art of record.

Claim 22 stands rejected as being anticipated by, among others, *Howard*. The Office Action states that the chemical compounds or elements tantalum nitrate (TaN), iridium (Ir), nickel (Ni), and arsenic (As) are disclosed in *Howard* at col. 3, lines 30-34. As mentioned above in connection with claim 4, applicants have downloaded a softcopy of *Howard* and performed word searches, but cannot find any reference to

any of these compounds or elements in *Howard*. Therefore applicants submit that the claimed invention of claim 22 is not anticipated by *Howard*. Since claim 22 depends from allowable claim 20, and further since claim 22 is not anticipated by *Howard*, applicants submit that claim 22 is allowable over the prior art of record.

Claim 23 stands rejected as being anticipated by *Stein*. Since claim 23 depends from allowable claim 20, applicants submit that claim 23 is allowable over the prior art of record.

SUMMARY

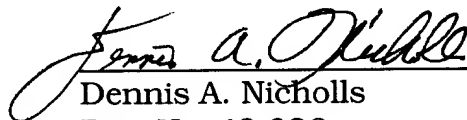
Applicants believe that all pending claims are allowable over the cited art of record. Applicants therefore respectfully request that all pending claims 2 through 7 and 20 through 23 be allowed.

If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to contact applicants' representative, Dennis A. Nicholls, at (408) 765-5789.

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due.

Respectfully submitted,

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